

## THE GENUS *RAMOSULUS* YOUNG IN COLOMBIA (HOMOPTERA: CICADELLIDAE, CICADELLINAE)<sup>1</sup>

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**ABSTRACT:** The genus *Ramosulus* Young is reviewed for Colombia. Of the four species in the genus, two species, *R. corrugipennis* (Osborn) and *R. phaedrus* Young, were known for Colombia. Five species are described as new, *R. agostus*, *R. crassus*, *R. hamatus*, *R. lobatus*, and *R. nanus*, making the total number of species nine for the genus and seven for Colombia.

**KEY WORDS:** *Ramosulus*, Homoptera, Cicadellidae, Cicadellinae, Colombia

The genus *Ramosulus* was described by Young (1977) in his revision of the *Cicadellini of the New World*. He designated *Cicadella corrugipennis* Osborn as the type of the genus, and included four species. Two of the species were known from Colombia, *R. phaedrus* Young and *R. corrugipennis* (Osborn) [Young (1977), Freytag and Sharkey (2002)]. This paper is an update of our knowledge of the genus for Colombia, and includes the description of five new species.

All types of the new species are deposited in the Instituto von Humboldt, Villa de Leyva, Colombia. Most material came from National Parks and Reserves. All species of *Ramosulus* are small, usually 4 to 5.5 mm, and mostly black with orange and sometimes yellow markings. This genus is known from the northern part of Brazil and from Colombia to Bolivia.

### Key to the species of *Ramosulus* in Colombia (males)

1. Clypellus black; pronotum with an interrupted transverse band of orange .....  
*phaedrus* Young
- 1'. Clypellus with lower portion pale yellowish white; pronotum with a complete  
transverse band of orange ..... 2
2. Pronotal transverse orange band nearly straight across, and either wide or nar-  
row; scutellum variable (Figs. 1-4) ..... 3
- 2'. Pronotal transverse orange band wide on lateral margins then narrow and bis-  
inuous; scutellum entirely black (Figs. 5-6) ..... 6

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3. Orange band across crown not reaching hind margin of head near eyes; pronotal transverse orange band narrow and close to posterior margin (Fig. 1) .....  
*lobatus* n. sp.
- 3'. Orange band across crown reaching hind margin of head near eyes; pronotal transverse orange band wide (Figs. 2-4) .....4
4. Pygofer with a tuft of short setae at apex (Fig. 14); aedeagus with a long shaft (Fig. 11) .....*corrugipennis* (Osborn)
- 4'. Pygofer with a spine-like process at apex (Figs. 10, 18, and 22) ..... 5
5. Scutellum with a pair of orange spots (Fig. 3); aedeagus with shaft straight, with apical processes long, and each nearly as long as the shaft (Fig. 16) .....  
*crassus* n. sp.
- 5'. Scutellum entirely black (Fig. 4); aedeagus s-shaped, with apical processes long, and each nearly two-thirds length of shaft (Fig. 20) .....*agostus* n. sp.
6. Orange band on crown not reaching hind margin of head near eyes (Fig. 5); pygofer with a stout spine off ventral caudal margin (Fig. 23).....*nanus* n. sp.
- 6'. Orange band on crown reaching hind margin of head near eyes (Fig. 6); pygofer with a small hook-like process off caudal margin (Fig. 26)..*hamatus* n. sp.

### ***Ramosulus phaedrus* Young**

*Ramosulus phaedrus* Young 1977, p. 441.

Length of males 5-5.1 mm, females 5.3-5.4 mm. Head mostly black with a median stripe from between ocelli extending onto face, and area from antennal ledges along eyes to posterior margin, orange. Pronotum black with a transverse band across median, interrupted medially, orange. Scutellum black with pair of small orange spots on posterior half. Wings much as in *corrugipennis*. Legs mostly brown.

**Male genitalia:** Young (1977) illustrated the male genitalia of this species. The types of this species were not seen, but this species was described from Cundinamarca, Colombia, on the basis of two males and three females. No other specimens have been seen of this species.

### ***Ramosulus lobatus* n. sp.**

(Figs. 1 and 7-10)

Length of males 4.2-4.6 mm., females 4.3-4.6 mm. Overall color pattern similar to *corrugipennis*. However, head, pronotum, scutellum (Fig. 1) with orange band not reaching hind margin of crown; scutellum with triangular spots, yellow.



1

LOBATUS



2

CORRUGIPENNIS

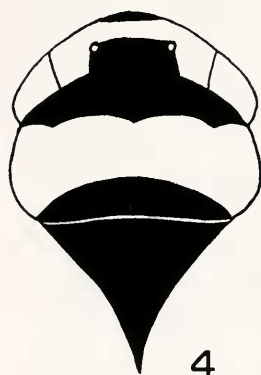


3

CRASSUS



0.5 mm



4

AGOSTUS



5

NANUS



6

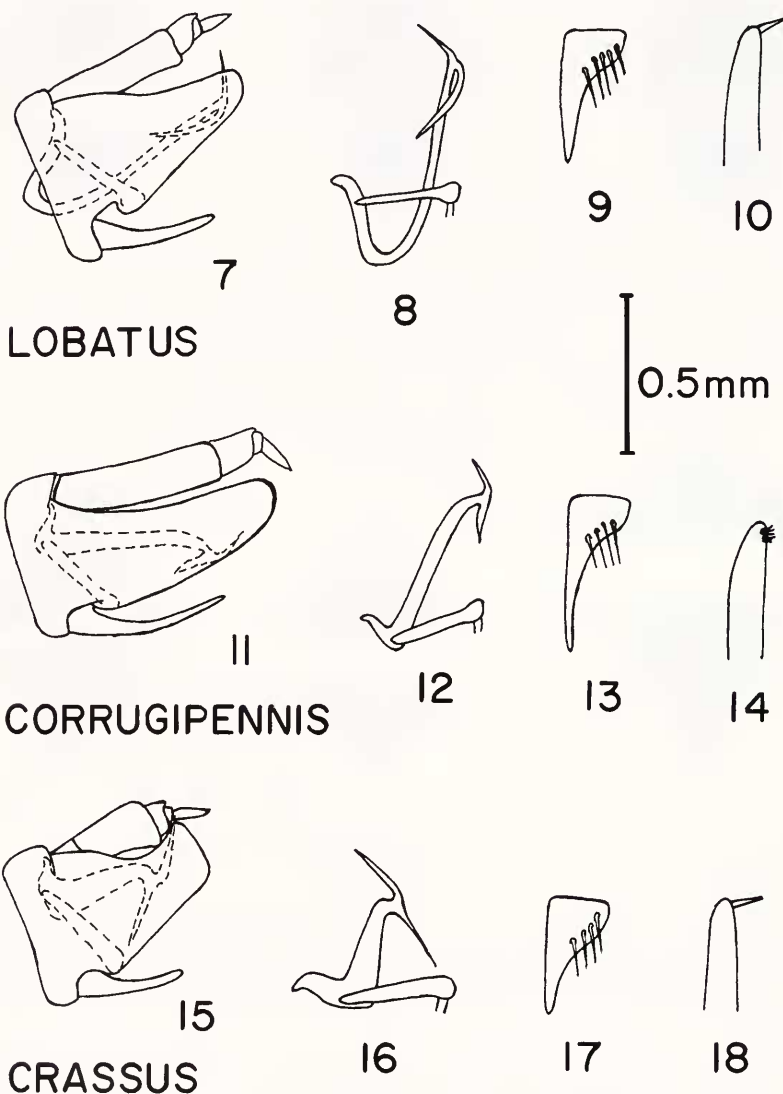
HAMATUS

Figures 1-6. Dorsal view of head, pronotum and scutellum of the species of *Ramosulus* covered in this paper. All drawn to same scale. Fig. 1, *Ramosulus lobatus* n. sp. Fig. 2, *R. corrugipennis* (Osborn). Fig. 3, *R. crassus* n. sp. Fig. 4, *R. agostus* n. sp. Fig. 5, *R. nanus* n. sp. Fig. 6, *R. hamatus* n. sp.

**Male genitalia:** Pygofer (Fig. 7) triangular with lobe on ventral margin near base, with setal-like process (Fig. 10) at apex. Plate (Fig. 9) narrowing to pointed apex, about half length of pygofer. Aedeagus (Fig. 8) long, narrow, u-shaped near base in lateral view with two long processes at apex, one extending dorsad beyond apex, other extending basad close to shaft. Paraphysis (Fig. 8) u-shaped, around base of aedeagus.

**Female genitalia:** Seventh sternum with posterior margin evenly convexly rounded, similar to *corrugipennis*.

**Type Material:** Holotype male: Colombia: Putumayo, PNN La Páya, Salao Grande, 0°01'S 74° 56'W, 330 m., 22-VIII-2001, Red, D Campos, M 2085. Paratypes: Four males, same data as holotype; one male, same data as holotype, except M 2087.



Figures 7-10. *Ramosulus lobatus* n. sp. Fig. 7, male genital capsule, lateral view. Fig. 8, aedeagus and paraphysis, lateral view. Fig. 9, plate, ventral view. Fig. 10, apex of pygofer, ventral view. Figures 11-14. *Ramosulus corrugipennis* (Osborn). Fig. 11, male genital capsule, lateral view. Fig. 12, aedeagus and paraphysis, lateral view. Fig. 13, plate, ventral view. Fig. 14, apex of pygofer, ventral view. Figures 15-18. *Ramosulus crassus* n. sp. Fig. 15, male genital capsule, lateral view. Fig. 16, aedeagus and paraphysis, lateral view. Fig. 17, plate, ventral view. Fig. 18, apex of pygofer, ventral view. All drawn to same scale.

**Other specimens examined:** one male, Colombia, Caquetá, PNN Chiribiquete, Rio Cuñare, 0°32'N 72°37'W, 300 m., Malaise, 15-19-XI-2000. E. González y M. Ospina; one male and one female, Colombia: Meta, PNN Tinigua, Vda. Bajo Raudal, 2°16'N, 73°48'W, 460 m., Malaise, 29-VI-20-VII-2002, C. Sánchez, M 2332; one female, Colombia, Meta, PNN Tinigua, Caño Nevera, 2°11'N 73°48'W, 390 m., Malaise, 23-I-7-II-2002, C. Sánchez, M 2330; one female, same data as last, except 20-23-XII-2001, M 2621; one female, Colombia: Meta, PNN Sierra de La Macarena, Cabaña Cerrillo, 3°21'N 73°56'W, 460 m., Malaise, 21-XII-2002-4I-2003, A. Herrera y W. Villalba, M 2983. All specimens deposited in the Instituto von Humboldt.

### ***Ramosulus corrugipennis* (Osborn)**

(Figs. 2 and 11-14)

*Cicadella corrugipennis* Osborn 1926, p. 204.

*Ramosulus corrugipennis* Young 1977, p. 439.

Length of males 4.2-4.6 mm, females 4.5-5 mm. Color mostly black with orange pattern. Head, pronotum, scutellum (Fig. 2). Head with crown black with wide transverse orange band anterior to ocelli, extending onto antennal shelf and back to posterior margin near eyes. Face with upper two-thirds black, lower third yellowish white. Pronotum black, with wide transverse orange band across posterior half, covering nearly half of dorsal surface. Scutellum black, with triangular orange spots on posterior half. Front wings black, with three wide longitudinal orange bands, one along commissural edge of clavus, one below claval suture from base to apical cells, one along entire costal margin; claval suture and commissure marked with thin line of yellow, apical cells smokey. Legs mostly yellow with orange tibiae.

**Male genitalia:** Pygofer (Fig. 11) elongate with rounded apex, apex with a cluster of short setae (Fig. 14). Plate (Fig. 13) narrowing to long pointed apex, about two-thirds length of pygofer. Aedeagus (Fig. 12) with long shaft, curving ventrally near apex, with two stout process at apex, one extending dorsally, one extending ventrally. Paraphysis (Fig. 12) u-shaped, around base of aedeagus.

**Female genitalia:** Seventh sternum with posterior margin evenly convexly rounded.

Young (1977) illustrated both the male and female characters of this species. This species has the widest range of any of the species of the genus and is known from Bolivia, Brazil, Colombia, Ecuador, and Peru. It is the most commonly collected species in Colombia and has been collected in Amazonas, Meta, Putumayo and Vaupés. Adults appear to be collected year round in these areas.

### ***Ramosulus crassus* n. sp.**

(Figs. 3 and 15-18)

Length of male 4.1 mm, female unknown. Overall color pattern similar to *corrugipennis*, except legs mostly orange. Head, pronotum, scutellum (Fig. 3), as in *R. corrugipennis*, except transverse orange band across pronotum covering two-thirds of dorsal surface.

**Male genitalia:** Pygofer (Fig. 15) short, narrowing to truncate apex, with large spine-like process at apex (Fig. 18). Plate (Fig. 17) short, narrowing to a pointed apex, less than half length of pygofer. Aedeagus (Fig. 16) short, stout at base, narrowing to ventrally bent apex, with two long processes at apex, one extending dorsally, other ventrally. Paraphysis (Fig. 16) u-shaped, around base of aedeagus.

**Type Material:** Holotype male: Colombia: Meta, PNN Tinigua, Vda. Bajo Raudal, 2°16'N 73°48'W, 460 m., Malaise, 29-VI-20 VII-2002, C. Sánchez, M 2332.



Figures 19-22. *Ramosulus agostus* n. sp. Fig. 19, male genital capsule, lateral view. Fig. 20, aedeagus and paraphysis, lateral view. Fig. 21, plate, ventral view. Fig. 22, apex of pygofer, ventral view. Figures 23-25. *Ramosulus nanus* n. sp. Fig. 23, male genital capsule, lateral view. Fig. 24, aedeagus and paraphysis, lateral view. Fig. 25, plate, ventral view. Figures 26-28. *Ramosulus hamatus* n. sp. Fig. 26, male genital capsule, lateral view. Fig. 27, aedeagus and paraphysis, lateral view. Fig. 28, plate, ventral view. All drawn to same scale.

***Ramosulus agostus* n. sp.**

(Figs. 4 and 19-22)

Length of male 5.5 mm, female 5.5 mm. Head, pronotum, scutellum (Fig. 4). Head with black rectangular spot on anterior median margin extending onto face, longer than wide, remainder of face yellowish white. Pronotum with transverse orange band wide and located medially. Scutellum black. Front wings similar to *corrugipennis*.

**Male genitalia:** Pygofer (Fig. 19) triangular with a long spine at apex (Fig. 22). Plate (Fig. 21) narrowing near middle to a long pointed apex, about half length of pygofer. Aedeagus (Fig. 20) with shaft s-shaped in lateral view, with two long processes at apex, one extending dorsad, other ventrad. Paraphysis (Fig. 20) u-shaped and near base of aedeagus.

**Female genitalia:** Seventh sternum with posterior margin evenly convexly rounded, embrowned on median third.

**Type Material:** Holotype male: Colombia: Chocó, PNN Utria, Boroboro, 6°01'N 77°20'W, 10 m., Malaise, 5-19-VII-2000, J. Pérez, M 335. Paratype female: Same data as holotype, except 20 m., 19-27-VII-2000, M 334.

This is the largest species in the genus at this time. Other specimens seen are two males from Colombia; Teresita, March 26, 1967, sweeping; and one male same data except April 20, 1967, in the University of Kentucky collection.

***Ramosulus nanus* n. sp.**

(Figs. 5 and 23-25)

Length of males 4.1-4.2 mm., female unknown. Head, pronotum, scutellum (Fig. 5). Head black with transverse band of orange anterior to ocelli, extending onto antennal ledges and along eyes but not reaching posterior margin; face with median black spot on anterior margin, remainder yellowish white. Pronotum black with transverse orange band on posterior half bisinous, wider on lateral margins. Scutellum black. Front wings similar to *corrugipennis*, except with additional narrow yellow band, or bands, between claval suture and larger band of orange on clavus.

**Male genitalia:** Pygofer (Fig. 23) small, rounded with prominent apical ventral spine. Plate (Fig. 25) short, robust, narrowing near middle to rounded apex, somewhat paddle shaped in lateral view (Fig. 23), extending slightly beyond pygofer. Aedeagus (Fig. 24) short, stout, with two processes at apex, one short and curving ventrally, other longer extending basally. Paraphysis (Fig. 24) u-shaped near base of aedeagus.

**Type Material:** Holotype male: Colombia: Vaupés, RN Mosiro-Itaiura (Caparú), Centro Ambiental, 1°04'S 69°31'W, 60 m., Red, 20-I-11-2003, M. Sharkey & D. Arias, M 3387. Paratypes: three males, same data as holotype, except Malaise, M 3386.

***Ramosulus hamatus* n. sp.**

(Figs. 6 and 26-28)

Length of males 4-4.4 mm., females 4.3-4.6 mm. Overall color pattern similar to *R. nanus*, except the orange band on crown extends to posterior margin. Head, pronotum, scutellum (Fig. 6).

**Male genitalia:** Pygofer (Fig. 26) short, rounded with small hook-like process at caudal apex. Plate as in *nanus* (Fig. 28). Aedeagus (Fig. 27) short, somewhat stout, with a short process at apex curving ventrad. Paraphysis (Fig. 27) u-shaped, around basal part of aedeagus.

**Female genitalia:** Seventh sternum with posterior margin evenly, but slightly, concavely rounded either side of median, also embrowned either side of median giving median triangular appearance.

**Type Material:** Holotype male: Colombia: Amazonas, PNN Amacayacu, Mocagua, 3°23'S, 70°06'W, 150 m., Malaise, 19-31-VII-2000, A. Parente, M 676. Paratypes: Two males, same data as holotype.

**Other specimens examined:** 51 males and 46 females, mostly same data as holotype, but collected various times since the time the types were collected. Specimens deposited in the Instituto von Humboldt and the University of Kentucky collection.

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